REMARKS/ARGUMENTS

STATUS OF CLAIMS

In response to the Office Action dated Previously Presented, claim 1 has been amended, and claims 14 and 15 have been added. Claims 1-15 are now pending in this application. No new matter has been added.

The as indication that claim 6 is objected to, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims is acknowledged and appreciated.

REJECTION OF CLAIMS UNDER 35 U.S.C. § 103

I. Claims 1-5 and 7-13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hunter et al. (US 2001/0026251) in view of Yumoto (US 2002/0195964) and Oomura USPN 6,693,388). It is presumed that the Examiner did not intend to include claim 13 in this rejection since claim 13 has been subsequently rejected under 35 U.S.C. § 103(a) as being unpatentable over Hunter et al. (US 2001/0026251) in view of Yumoto (US 2002/0195964).

Claim 13 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hunter et al. (US 2001/0026251) in view of Yumoto (US 2002/0195964) and Oomura USPN 6,693,388).

The rejections are respectfully traversed.

II. In the response to the Office Action of October 13, 2006, Applicants asserted that neither Hunter nor Yumoto discloses the threshold voltage obtaining unit ***which is present outside the display region***. In the image display apparatus of Hunter and Yumoto, a unit for obtaining the threshold voltage of the drive element is present inside each pixel of the display region, **NOT** outside the display region.

However, a further review of Hunter and Yumoto has revealed that neither Hunter nor Yumoto discloses even a threshold voltage obtaining unit for the drive element present in a pixel. In other words, both Hunter and Yumoto fail to disclose any ***threshold voltage obtaining unit*** at all, as explained below. Consequently, independent claim 1 has been amended to delete reference to the threshold voltage obtaining unit "is arranged outside the display region".

Regarding Hunter, paragraph [0054] of Hunter states "Fig. 6 shows conceptually a first method of compensating for the threshold voltage which can be employed in a current source of the invention". Paragraph [0059] also states "Fig. 7 shows a practical implementation of the circuit shown in Fig. 6. ... The components indicated at 19 may be considered to define the current source." That is, the circuits shown in Figs. 6 and 7 are arranged in a current source.

Hunter also discloses in paragraph [0035] that "the display data signals are provided by the column driver circuit 8 which acts as a current source." That is to say, the circuits in Figs, 6 and 7 are arranged in the column driver circuit 8 which is located outside the display region.

Meanwhile, Hunter discloses in paragraphs [0054] to [0060] that the circuit in Fig. 6 compensates a threshold voltage of the transistor 10. However, the transistor 10 is

arranged in a current source, **NOT** in a pixel. In Fig. 6, the obtained threshold voltage is of the drive element of the current source,

Hunter also discloses in paragraph [0062] that "an additional transistor T7 is shown connected between the current source 19 and the column of pixels. This enables the column of pixels to be isolated from the current source 19 during the threshold compensation stage. A pixel has been represented schematically at 1". Hunter also discloses in paragraph [0065] that "during the threshold compensation cycle 22, the transistor T7 is turned off, and the gate voltage is accordingly low." That is, Hunter teaches that the circuit in Fig, 7 compensates for a threshold voltage of drive transistor 10 in the current source 19, **NOT** of drive transistor in a pixel 1. In addition, since transistor T7 is turned off during the compensating period, the circuit in Fig. 7 is originally isolated from the pixel 1 during the compensating period and cannot compensate the drive element in the pixel.

Therefore, Hunter does **NOT** disclose the threshold voltage obtaining unit that obtains a threshold voltage of the driver element in a pixel.

Regarding Yumoto, Yumoto discloses in paragraph [0065] a current writing type pixel circuit. Since the current writing type pixel circuit directly supplies the driving transistor with a voltage which enables the desired current to flow through the OLED, the current writing type pixel circuit does not need to obtain a threshold voltage of the drive transistor in a pixel. Therefore, Yumoto does **NOT** disclose a threshold voltage obtaining unit.

For example, in a pixel circuit in Fig. 3, a current Iw, which equals a current lo led which is to flow through the OLED 121, is supplied to the TFT 125 and the TFT 126 through the data line 128 and TFT 124.

In an early stage at this time, the low current flows through the TFT 125 and the high current flows through the TFT 126. However, the current flowing through the TFT 125 becomes gradually higher, and the current flowing through the TFT 126 becomes gradually lower. Finally, the former equals the current lw (= lo led) and the latter is substantially zero, and a gate-source voltage of the TFT 125 equals a voltage which enables the current iw to flow through the TFT 125. The gate-source voltage of the TFT 125 is applied to and stored in the capacitor 123. Since the TFT 125 operates in a saturation region, the TFT 125 operates as a current source that feeds a current equal to current Iw.

Next, the driving TFT 122 feeds the current I flowing through the OLED 121 by driving the driving TFT 122 based on the voltage stored in the capacitor 123.

As mentioned above, the pixel circuit in Fig, 3 of Yumoto does not obtain a threshold voltage of the driver transistor. Though the pixel circuit in Fig, 3 is explained above, the operation principle is almost the same in the pixel circuits in Figs. 12, 13, 15 and 16. Therefore, Yumoto also does **NOT** disclose a threshold voltage obtaining unit.

If the Examiner disagrees with this assessment of Hunter and Yumoto, it is requested that he specifically identify ***threshold voltage obtaining unit*** in both Hunter and Yumoto.

Regarding Oomura, as with the Yumoto, Oomura discloses basically a current writing pixel circuit. In lines 14 to 19 of column 7, which the Examiner refers to in the

Office Action, there is no description that the threshold voltage of the drive transistor is obtained. There is only a description that changing a luminance for each pixel does not occur even though the threshold voltage of the drive transistor changes. Though the operation method of the pixel circuit shown in Fig. 1 of Oomura is described from line 28 of column 8 to line 9 of column 7, there is no description regarding obtaining the threshold voltage of the drive transistor. Since the pixel circuit of Oomura is a current writing pixel circuit, it is not necessary to obtain a threshold voltage of the drive transistor. Therefore, Oomura also does **NOT** disclose a threshold voltage obtaining unit.

As described above, since neither Hunter, Yumoto nor Oomura discloses a threshold voltage obtaining unit, independent claims 1 and 13 are patentable over these references, considered alone or in combination, as are dependent claims 2-12, which depend directly or indirectly from amended independent claim 1. Therefore, the allowance of amended claim 1, as well as of claims 2-13, is respectfully solicited.

NEW CLAIMS

New claims 14 and 15 have been added. Independent claim 14 is directed to a driving method comprising:

> providing an image display apparatus that includes a plurality of pixels, each pixel including a current controlled light emitting element and a driver element driving the current-controlled light emitting element, and a conductive member that is electrically and commonly connected to the plural driver elements; and
>
> measuring a potential variation of the conductive member to obtain threshold voltages of the driver elements electrically connected to the conductive member.

Dependent claim 14 delineates that "the potential variation of the conductive member occurs due to a cause including one of a current flowing to the conductive member and a current flowing from the conductive member through the driver elements."

Neither Hunter, Yumoto nor Oomura discloses a step of measuring a potential variation of the conductive member to obtain threshold voltages of driver elements, as required by new independent claim 14. Therefore, new independent claims 14 and 15 are patentable over Hunter, Yumoto and Oomura, and their allowance is respectfully solicited.

CONCLUSION

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Edward J. Wise, Reg. No. 34,523, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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